APRIL/MAY 2024

CEEL62B/BEEL62B — DIGITAL SYSTEM DESIGN

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

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1. Define the base or radix.
2. List out the universal gates and draw the symbol.
3. What is a meant by combinational logic circuit?
4. Define Hardware Description Language.
5. Define the term active high outputs.
6. Define strobe and enable?
7. Define flip-flop.
8. What is counter?
9. Define synchronous circuit.
10. What are the different types of Hazards?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain the basic laws of Boolean algebra with truth table.

Or

(b) Simplify F(A,B,C) = ABC + A'B'C' + A'BC + ABC' + A'B'C.

12. (a) Explain the Half adder circuit and truth table.

Or

(b) Short note on HDL.

13. (a) Explain in detail encoder.

Or

(b) Explain the 2 :1 multiplexer.

14. (a) Explain the working function of D flip flop.

Or

(b) Explain the functions of binary up/down counter.

15. (a) Differentiate state table and state diagram.

Or

(b) Short note on race free state assignments.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Show that NAND and NOR as universal building block

17. Draw the combinational logic circuit and truth table for the Boolean expression

AB'C + A'BC+ A'B+ BC

18. Discuss the functions of 3 to 8 decoder.

19. Explain the working function of ring counter and Johnson counter.

20. Discuss in analysis and design of asynchronous sequential circuits.

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